Space Weather Forecast

Issued on Saturday, 01 June 2024 at 00:13 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of isolated Strong flares on all days. Chance of G1/Minor, slight chance G2/Moderate geomagnetic storm activity, on Day 1 (01 June). Chance of G1/Minor geomagnetic activity late Day 2 (02 Jun) or early Day 3 (03 Jun).

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity was High, with a peak Strong-class flare at 31/2203 UTC from the largest and most complex region on the disc in the southeast. It has shown growth of intermediate spots in the last 24 hours, and it has magnetic complexity. Another region in the north centre disc is also of note, although it has started to fade in the last 24 hours. A further region in the northeast has shown growth recently, and is starting to develop penumbra. The other sunspot groups on the disc are small, simple and appear stable at this time.

A faint partial halo Coronal Mass Ejection (CME) was observed on coronagraph imagery around 31/0800, likely from close to a sunspot region in the northeast. Analysis suggests a glancing blow at Earth late on Day 2 into Day 3 (02-03 Jun), albeit with low confidence.

Solar Wind / Geomagnetic Activity: Solar winds showed evidence of a couple of weak CME arrivals during this period. Wind speeds were at background levels, between 330-370 km/s. The Interplanetary Magnetic Field was generally weak, but was moderate briefly near the start of the period. The north-south component was predominately negative (southward directed). Geomagnetic activity was Quiet to Active (Kp 2-4).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary
Solar Activity: Moderate activity is expected, with a chance of isolated Strong flares throughout the period. The moderately large regions in the southeast and north-centre disc provide the bulk of the current flare risk.

Solar Wind / Geomagnetic Activity: A CME that left the Sun on 29 May may give a glancing blow at Earth on Day 1 (01 June). Solar winds are likely to persist at background levels through Days 1 and 2 in the absence of any potential CME arrival. A small coronal hole in the northwest disc could give a modest enhancement from late Day 1 or Day 2 (01-02 June), with winds peaking at slightly elevated levels. A faint CME from the northeast may give a glancing blow late on Day 2 into day 3 (02-03 Jun).

Geomagnetic activity is expected to be mainly Quiet to Unsettled initially on Day 1, perhaps Active under weak CME influence. Any arrival of the 29 May CME could see activity increase to G1/Minor Storm levels with a slight chance of G2/Moderate Storms through Day 1. On Day 2, there is a slight chance of peak G1/Minor Storm conditions resulting from minor coronal hole and possible residual CME influence, otherwise activity should be at Quiet to Unsettled levels, before

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

potentially rising again late Day 2 into Day 3 to G1/Minor Storm conditions if the second CME glance arrives. Activity then easing back Quiet by Day 4 (04 Jun).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is likely to persist at background levels, with a slight but increasing chance of solar radiation storms given any further notable flares.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	40	30	30	5
Strong	G3	No	5	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	75	75	75	75
Very Active	R3 to R5 X	Yes	30	30	30	30

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	15	20	25
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.